

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A hot-rolled wire rod ~~comprising~~ consisting ~~essentially of~~ (in mass%):

C: 0.6 to 1.0%,

Si: 0.1 to 1.5%,

Mn: 0.3 to 1.0%,

P: 0.02% or less, [[and]]

S: 0.02% or less, and

at least one element selected from the group consisting of Nb, V, Ti, Hf and

Zr: 0.1% or less (excluding zero) in total;

wherein said hot-rolled wire rod is

5.0 mm or more in diameter;

not less than 90% of said wire rod in area percentage comprises a pearlite structure;

and

the mechanical properties of said wire rod 4 m in length satisfy the following expressions (1) to (4):

(1) $TS^* - 30 \leq \text{Average value of tensile strength (TS}_{AV} \text{ in MPa)} \leq TS^* + 30$,

where, $TS^* = 400 \times \{[C] + ([Mn] + [Si])/5\} + 670$ and the elements in square brackets []

in the equation mean the contents of relevant elements in percentage,

(2) Standard deviation of tensile strength ($TS\sigma$) ≤ 30 MPa,

(3) Average value of reduction of area (RA_{AV}) $> 35\%$,

(4) Standard deviation of reduction of area ($RA\sigma$) $\leq 4\%$.

Claim 2 (Original): A hot-rolled wire rod according to claim 1, wherein the average diameter of nodules in said pearlite structure is $10 \mu\text{m}$ or less.

Claim 3 (Previously Presented): A hot-rolled wire rod according to claim 1, said wire rod further comprising:

Cr: 0.3% or less (excluding zero) and/or

Ni: 0.3% or less (excluding zero).

Claim 4 (Canceled).

Claim 5 (Previously Presented): A hot-rolled wire rod according to claim 1, said wire rod further comprising N controlled to 0.01% or less.

Claim 6 (Previously Presented): A hot-rolled wire rod according to claim 1, said wire rod further comprising Al and Mg controlled to 0.05% or less and 0.01% or less, respectively.

Claim 7 (Canceled).

Claim 8 (New): A hot-rolled wire rod consisting essentially of (in mass%):

C: 0.6 to 1.0%,
Si: 0.1 to 1.5%,
Mn: 0.3 to 1.0%,
P: 0.02% or less,
S: 0.02% or less, and
B: 0.001 to 0.005%;

wherein said hot-rolled wire rod is

5.0 mm or more in diameter;

not less than 90% of said wire rod in area percentage comprises a pearlite structure;

and

the mechanical properties of said wire rod 4 m in length satisfy the following expressions (1) to (4):

(1) $TS^* - 30 \leq \text{Average value of tensile strength (} TS_{AV} \text{ in MPa)} \leq TS^* + 30$,

where, $TS^* = 400x\{[C]+([Mn]+[Si])/5\}+670$ and the elements in square brackets []

in the equation mean the contents of relevant elements in percentage,

(2) Standard deviation of tensile strength ($TS\sigma$) ≤ 30 MPa,

(3) Average value of reduction of area (RA_{AV}) $> 35\%$,

(4) Standard deviation of reduction of area ($RA\sigma$) $\leq 4\%$.

Claim 9 (New): A hot-rolled wire rod according to claim 8, wherein the average diameter of nodules in said pearlite structure is $10 \mu\text{m}$ or less.

Claim 10 (New): A hot-rolled wire rod according to claim 8, said wire rod further comprising:

Cr: 0.3% or less (excluding zero) and/or

Ni: 0.3% or less (excluding zero).

Claim 11 (New): A hot-rolled wire rod according to claim 8, said wire rod further comprising N controlled to 0.01% or less.

Claim 12 (New): A hot-rolled wire rod according to claim 8, said wire rod further comprising Al and Mg controlled to 0.05% or less and 0.01% or less, respectively.

Claim 13 (New): A hot-rolled wire rod consisting essentially of (in mass%):

C: 0.6 to 1.0%,

Si: 0.1 to 1.5%,

Mn: 0.3 to 1.0%,

P: 0.02% or less,

S: 0.02% or less,

B: 0.001 to 0.005%, and

at least one element selected from the group consisting of Nb, V, Ti, Hf and

Zr: 0.1% or less (excluding zero) in total;

wherein said hot-rolled wire rod is

5.0 mm or more in diameter;

not less than 90% of said wire rod in area percentage comprises a pearlite structure;

and

the mechanical properties of said wire rod 4 m in length satisfy the following expressions (1) to (4):

(1) $TS^* - 30 \leq \text{Average value of tensile strength (} TS_{AV} \text{ in MPa) } \leq TS^* + 30$,

where, $TS^* = 400 \times \{[C] + ([Mn] + [Si])/5\} + 670$ and the elements in square brackets []

in the equation mean the contents of relevant elements in percentage,

(2) Standard deviation of tensile strength ($TS\sigma$) ≤ 30 MPa,

(3) Average value of reduction of area (RA_{AV}) $> 35\%$,

(4) Standard deviation of reduction of area ($RA\sigma$) $\leq 4\%$.

Claim 14 (New): A hot-rolled wire rod according to claim 13, wherein the average diameter of nodules in said pearlite structure is 10 μm or less.

Claim 15 (New): A hot-rolled wire rod according to claim 13, said wire rod further comprising:

Cr: 0.3% or less (excluding zero) and/or

Ni: 0.3% or less (excluding zero).

Claim 16 (New): A hot-rolled wire rod according to claim 13, said wire rod further comprising N controlled to 0.01% or less.

Claim 17 (New): A hot-rolled wire rod according to claim 13, said wire rod further comprising Al and Mg controlled to 0.05% or less and 0.01% or less, respectively.

Claim 18 (New): A hot-rolled wire rod obtained by hot rolling a steel composition comprising (in mass%):

C: 0.6 to 1.0%,

Si: 0.1 to 1.5%,

Mn: 0.3 to 1.0%,

P: 0.02% or less, and

S: 0.02% or less;

performing a first cooling of the wire rod at an average cooling rate of 8 to 20°C/sec in a temperature range of from 900 to 670°C; and

performing a second cooling of the wire rod at an average cooling rate of 1 to 5°C/sec in a temperature range of from 670 to 500°C;
wherein said hot-rolled wire rod is

5.0 mm or more in diameter;

not less than 90% of said wire rod in area percentage comprises a pearlite structure;
and

the mechanical properties of said wire rod 4 m in length satisfy the following expressions (1) to (4):

(1) $\text{TS}^* - 30 \leq \text{Average value of tensile strength (TS}_{\text{AV}} \text{ in MPa)} \leq \text{TS}^* + 30$,

where, $\text{TS}^* = 400 \times \{[\text{C}] + ([\text{Mn}] + [\text{Si}])/5\} + 670$ and the elements in square brackets [] in the equation mean the contents of relevant elements in percentage,

- (2) Standard deviation of tensile strength ($TS\sigma$) ≤ 30 MPa,
- (3) Average value of reduction of area (RA_{AV}) $> 35\%$,
- (4) Standard deviation of reduction of area ($RA\sigma$) $\leq 4\%$.